

REMARKS

In view of the above amendments and the following remarks, reconsideration of the objections and rejections set forth in the Office Action of June 9, 2006 is respectfully requested.

In order to make necessary editorial corrections, the entire specification and abstract have been reviewed and revised. As the revisions are quite extensive, the amendments to the specification and abstract have been incorporated into the attached substitute specification and abstract. For the Examiner's benefit, a marked-up copy of the specification indicating the changes made thereto is also enclosed. No new matter has been added by the revisions. Entry of the substitute specification is thus respectfully requested.

The Examiner objected to claim 10 because it appeared that the dependency of claim 10 was improper. In view of this objection, claim 10 has now been amended so as to depend from claim 7. Consequently, it is respectfully submitted that the Examiner's objection to claim 10 has been overcome.

The Examiner rejected elected independent claim 1 and several of the dependent claims as being anticipated by the Yoshio reference (US 6,555,158); rejected elected independent claim 1 and several of the dependent claims as being unpatentable over the Chen reference (US 6,699,380); rejected dependent claim 10 as being unpatentable over the Chen reference in view of the Stevens reference (US 6,824,612); and rejected dependent claim 18 as being unpatentable over the Chen reference in view of the Arcilesi reference (US 4,814,205). However, independent claim 1 has now been amended as indicated above. For the reasons discussed below, it is respectfully submitted that amended independent claim 1 and the claims that depend therefrom are clearly patentable over the prior art of record.

Independent claim 1 has now been amended so as to clarify the step of bringing the pretreatment liquid into contact with the surface of the substrate. In particular, as explained in page 37, line 23 through page 38, line 11 of the original specification, the pretreatment liquid is brought into contact with the surface of the substrate in such a manner as to *remove a metal oxide film* from a surface of the metal region, *remove residue* from a surface of the insulating film, and *impart a catalyst* to the metal region so as to activate the surface of the metal region (see also

page 24, line 24 through page 25, line 7). As a result of these features, no additional pre-cleaning/rinsing step is necessary, thereby greatly reducing the substrate processing time. Furthermore, the step of bringing the pretreatment liquid into contact with the surface of the substrate as now recited in amended independent claim 1 also prevents the metal region from being damaged or being partially dissolved, thereby reducing the possibility of current leakage in the processed substrate so as to improve performance.

The Yoshio reference is directed to a method of plating a structure, in which a barrier layer is subjected to a pretreatment (see Abstract). Although the Examiner noted that the Yoshio reference teaches imparting a Pd colloidal catalyst to a substrate, the Yoshio reference does not disclose or suggest bringing a pretreatment liquid into contact with a surface in such a manner as to remove a metal oxide film from a surface of a metal region and remove residue from a surface of an insulating film, *in addition to* imparting a catalyst to the metal region. Therefore, it is respectfully submitted that the Yoshio reference does not anticipate or even suggest the substrate processing method recited in amended independent claim 1.

The Chen reference is directed to a modular electrochemical processing system, including a pretreatment cell 201 in which various semiconductor fabrication processes can be performed. In the outstanding Office Action, the Examiner noted that the Chen reference generally teaches that the pretreatment processes include steps that “enhance the plating process.” In this regard, the Chen reference teaches that the pre-treatment processes can include treating the substrate surface with a fluid configured to form or remove an oxide layer. Furthermore, the Examiner asserted that it is well known in the art to perform a catalyst imparting pretreatment step. However, although it might be known to perform several separate steps in order to remove a metal oxide film and/or residue and to impart a catalyst, the Chen reference does not disclose or suggest bringing a pretreatment liquid into contact with a surface of a substrate in such a manner as to remove a metal oxide film from a surface of a metal region, remove residue from a surface of an insulating film, and impart a catalyst to the metal region. Therefore, it is respectfully submitted that the Chen reference does not even suggest the invention recited in amended independent claim 1.

The Stevens reference and the Arcilesi reference are both generally directed to electroless plating systems. However, these references also do not disclose or suggest a substrate processing method comprising bringing a pretreatment liquid into contact with a surface of a substrate in such a manner as to remove a metal oxide film from a surface of a metal region, remove residue from a surface of an insulating film, and impart a catalyst to the metal region. Therefore, one of ordinary skill in the art would not be motivated by the Stevens reference or the Arcilesi reference so as to modify either the Yoshio reference or the Chen reference in a manner that would result in the invention recited in amended independent claim 1. Accordingly, it is respectfully submitted that amended independent claim 1 and the claims that depend therefrom are clearly patentable over the prior art of record.

The Examiner is also directed to new dependent claims 31-34 which each recite subject matter that further distinguishes the present invention from the prior art. Therefore, in addition to the reasons discussed above with respect to claim 1, it is submitted that new dependent claims 31-34 are further distinguishable from the prior art in view of the subject matter recited therein.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. However, if the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the Applicant's undersigned representative.

Respectfully submitted,

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